



# NNSA Supports Response to the Japanese Earthquake and Tsunami

Following the devastating March 11 earthquake and tsunami in Japan, NNSA called upon experts from across the DOE and NNSA enterprise to assist with response efforts.

On March 15, 33 experts departed Nellis Air Force Base in Las Vegas, Nev., bound for Japan where they joined six other DOE experts already on the ground. These DOE/NNSA Consequence Management Response Teams, with more than 17,000 pounds of equipment, are working to support the Japanese with nuclear issues related to damaged nuclear reactors. The teams have specialized skills, expertise and equipment to help assess, survey, monitor and sample areas for radiation following the damage at the Fukushima-Daiichi nuclear power plant as a result of the earthquake and tsunami.

Since arriving in Japan, NNSA teams have collected and analyzed data gathered from more than 130 hours of survey flights aboard Department of Defense aircraft and thousands of ground monitoring

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**SUPPORT TO JAPAN:** National Security Technologies scientists, technicians and engineers from the National Nuclear Security Administration's (NNSA) Nevada Site Office board the Air Force C-17. Highly trained nuclear emergency response personnel and more than 17,000 lbs. of high-tech equipment are being sent to Japan as part of the Department of Energy and NNSA's effort to assist Japanese personnel with nuclear issues.

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# NNSA Celebrates Women's Contributions to Nuclear Security

This month the NNSA, in recognition of National Women's History Month and the 100th anniversary of International Women's Day, celebrated the contribution of the tens of thousands of women – both past and present – for their extraordinary work and achievements in support of the NNSA mission and national security.

As part of the celebration, NNSA honored the contributions of women in the NNSA with a

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## Administrator's Corner

As you know, earlier this month a massive earthquake and devastating tsunami struck the coast of Japan, causing significant damage to the Fukushima Daiichi nuclear power plant. First and foremost, our thoughts and prayers go out to the people of Japan during this very difficult time.



As devastating as this situation has been for the people of Japan, it is the latest reminder of the tremendous skill and commitment to service that exists across our enterprise. The men and women of NNSA have once again risen to the occasion, stepping up and leveraging the best nuclear science in the world to monitor and assess the health and safety impacts of this event and identify ways to stabilize the dangerous situation at the reactor site.

Within days, 40 of your colleagues were on the ground with more than 17,200 pounds of equipment leading the Department's response. Under the leadership of people like Deborah Wilber and Dan Blumenthal, our Aerial Measuring System and Consequence Management Response and Home Teams are utilizing their unique skills, expertise and equipment to help our partners in Japan.

Since arriving in Japan, they have collected and analyzed data from more than 130 hours of flights and thousands of ground monitoring points, helping protect the Japanese public and the tens of thousands of U.S. citizens and military personnel living and working in Japan. The data has been provided to our partners in the Government of Japan and other U.S. Government agencies, and posted online at [www.energy.gov/japan2011](http://www.energy.gov/japan2011) so members of the public can see it for themselves.

While these teams are the tip of the spear, here at home, we have teams working around the clock on the Nuclear Incident Team coordinating our response. Experts at Lawrence Livermore's National Atmospheric Release Advisory Center (NARAC) have provided predictive atmospheric modeling of potential radiation dispersion from the reactor on an ongoing basis since the event occurred. This information has been used to support contingency planning by the U.S. Departments of State and Defense and by the Government of Japan. We continue to work with our laboratories and sites to identify equipment and expertise that can be of use to our Japanese colleagues as they continue to address this crisis.

Everyone in the NNSA should be aware of the important role we are playing in dealing with this tragedy. Our contributions have been recognized both by the Government of Japan and here at home. Many thanks for your support.

**Tom D'Agostino**

## NNSA Supports Response to the Japanese Earthquake and Tsunami

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points. The teams on the ground and personnel from the nuclear security labs and the Nevada National Security Site are leveraging their unique expertise in nuclear security and emergency response from across the NNSA and DOE enterprise to provide assistance to the Japanese government and U.S. policy makers. The teams continue to have close contact with Japanese officials and continue to provide the Japanese government with expertise in a variety of areas.

At home that data has been collected, analyzed and used by the National Atmospheric Release Advisory Center (NARAC) at LLNL. Using weather models and data gathered on the ground in Japan, NARAC is providing predictive analysis of the impact of the situation.

The information collected from DOE/NNSA teams in Japan is posted on DOE's website at [www.energy.gov/japan2011](http://www.energy.gov/japan2011). Although there is no human health risk expected for people in the continental U.S., Alaska, Hawaii or the U.S. territories according to the Nuclear Regulatory Commission and the Environmental Protective Agency, the DOE will continue to update the information posted on this website, consistent with President Obama's commitment to share with the public important information related to health and safety.

## NNSA, Fort Hood Partner to Recover High-Activity Radioactive Source

In March, the NNSA announced the successful recovery of a high-activity radiological device from a hospital at Fort Hood, Texas. The device, which contained approximately 3,000 curies of Cesium-137, had been previously used to irradiate blood at the Carl R. Darnall Army Medical Center, but was no longer in use. In February, a team of NNSA experts travelled to Fort Hood to package and remove the device for disposal at a federal facility.

Every year, thousands of radiological sources become disused and unwanted in the United States. Due to their high activity and potential portability, some radioactive sealed sources, such as those contained in blood irradiators, could be used in radiological dispersal devices (RDD), commonly referred to as "dirty bombs." Detonation of a "dirty bomb" could cause harm to the public and economic impacts in the billions of dollars. NNSA works with partners in the private sector as well as state, local, and federal agencies, like the Department of Defense to remove these unused and unwanted sources for permanent, safe disposition to prevent terrorists from acquiring these radiological materials.

"This operation is an important example of our efforts to implement President Obama's nuclear security agenda both here at home and around the world" said NNSA Deputy Administrator for Defense Nuclear Nonproliferation Anne Harrington. "The President's 2012 budget request includes the resources necessary to partner with local communities and other state and federal agencies in similar operations with the goal of making our communities safer."

This operation was part of NNSA's Global Threat Reduction Initiative which collaborates with partner sites to enhance radiological security. NNSA's work includes providing voluntary security enhancements for radioactive materials in use and removing radioactive materials that are no longer being used, to prevent terrorists from potentially dangerous materials. To date, NNSA has recovered more than 27,000 disused and unwanted radioactive sealed sources in the United States containing about 800,000 curies of activity.



**NNSA LEADERSHIP IN THE FIELD:** Sandia National Laboratories Center 1600 Director Keith Matzen, left, explains to NNSA's Brig. Gen. Sandra Finan, right foreground, how a wire array target is used on the Z facility. Looking on, from Keith's left, are Center 200 Director Bruce Walker, NNSA Sandia Site Office Manager Patty Wagner, and Lt. Commander John Adkisson, an aide to Gen. Finan.

## NNSA Celebrates Women's Contributions to Nuclear Security

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webpage (<http://nnsa.energy.gov/internationalwomensday>) highlighting just a few examples from across the nuclear security enterprise of women in leadership roles or at the top of their fields of expertise. Among those highlighted included members of the NNSA leadership in Washington; including Principal Deputy Administrator Neile Miller, Principal Assistant Deputy Administrator for Military Application Brig Gen Sandra Finan, and Deputy Administrator for Defense Nuclear Nonproliferation Anne Harrington.

This month the NNSA honors the generations of women in the U.S. for their achievements and their contributions to the nation and the world.



## Investing in the Future

# Implementing the President's Nuclear Security Agenda Improving the Way We Do Business

"We must ensure that terrorists never acquire a nuclear weapon. This is the most immediate and extreme threat to global security."

"Make no mistake: As long as these weapons exist, the United States will maintain a safe, secure and effective arsenal to deter any adversary, and guarantee that defense to our allies."

~ President Barack Obama, April 2009

### MANAGING THE STOCKPILE



President Obama's FY 2012 Budget Request seeks \$7.6 billion (up 8.9 percent) to invest in the people, infrastructure and science, technology, and engineering needed to maintain the safety, security and effectiveness of the nuclear deterrent.

- Increases Stockpile Support by 4.8 percent to conduct Life Extension Programs and provide direct support of the nuclear weapon stockpile
- Makes critical investments to maintain key facilities and replace vital uranium processing and plutonium research capabilities
- Increases our investment in science, technology and engineering by 3.1 percent
- Restores the stockpile surveillance program

### REDUCING NUCLEAR DANGERS



The request seeks \$2.5 billion in FY 2012 and \$14.2 billion over the next five years to reduce the global nuclear threat by detecting, securing, safeguarding, disposing, and controlling nuclear and radiological material, as well as promoting the responsible application of nuclear technology and science.

- Seeks more than \$1 billion to lock down, remove, and prevent the smuggling of dangerous nuclear materials around the world
- Directs more than \$890 million to permanently eliminate surplus U.S. fissile material
- Directs more than \$360 million to develop novel technologies to detect foreign nuclear weapons proliferation or detonation and to monitor foreign commitments to treaties and agreements
- Provides the Nation with enhanced emergency response and counterterrorism capabilities

### POWERING THE NUCLEAR NAVY



To power a modern nuclear Navy, the budget request includes \$1.1 billion for NNSA's Naval Reactors program, an increase of 7.8 percent over the President's FY 2011 Budget Request.

- Continues design work on the propulsion unit for the OHIO class submarine replacement
- Modernizes the Spent Nuclear Fuel Infrastructure at the Naval Reactors Facility located at the Idaho National Laboratory
- Refuels the land-based prototype reactor in upstate New York

### INVESTING IN A MODERN ENTERPRISE



The President's FY 2012 budget request represents a commitment to the science base that underpins our national security mission and supports the physical infrastructure that enables us to perform our work.

- Increases our investments in science, technology, and engineering by 3.1 percent to support programs such as:
  - Exascale Computing
  - High Energy Density Science
- Increases infrastructure investments by over 21 percent to include:
  - CMRR (Plutonium Processing)
  - UPF (Uranium Processing)
  - MOX and PDC (Plutonium Disposition Capabilities)
- Infrastructure improvements reduce operational costs and provide enhanced security for nuclear weapons and materials

### IMPROVING THE WAY WE MANAGE OUR RESOURCES



Consistent with the Obama Administration's commitment to delivering on critical national security missions at the best value to the American taxpayer, the FY 2012 Budget Request will enable NNSA to continue to improve the way NNSA does business and manages resources.

- NNSA was recognized with the Malcolm Baldrige National Quality Award and received two Project Management Institute awards
- Partnering with Headquarters, site offices, and M&O partners streamline the governance model
- Established new office to coordinate acquisition and oversight of major construction projects
- Use technology to save money across the enterprise

# The Science of Nuclear Security

## NNSA's Cielo Supercomputer Approved for Classified Operations

NNSA's Cielo supercomputer, which is housed at Los Alamos National Laboratory (LANL), has officially been approved to conduct classified operations.

Cielo supports Lawrence Livermore National Laboratory, LANL and Sandia National Laboratories and helps NNSA ensure the safety, security, and effectiveness of the nuclear stockpile while maintaining the moratorium on underground nuclear explosive testing.

"As NNSA and the Department of Energy work to invest in the future of supercomputing, Cielo enables our researchers and scientists to increase their understanding of complex physics and improve confidence in the predictive capability for stockpile stewardship," said Don Cook, NNSA's deputy administrator for Defense Programs. "Ensuring that our nation has cutting edge supercomputing platforms to apply to our stockpile stewardship program is a key element of NNSA's efforts to implement the president's nuclear security agenda."

Cielo, a petascale supercomputer, is primarily utilized

to perform milestone weapons calculations. It can achieve more than one quadrillion floating point operations per second, and it runs

LANL and Sandia.

The platform cost was less than \$54 million and the architecture of Cielo was based



**PREDICTIVE CAPABILITY:** Housed at Los Alamos National Laboratory, NNSA's petascale supercomputer Cielo runs the largest and most demanding workloads involving modeling and simulation.

the largest and most demanding modeling and simulation workload in the nuclear security enterprise. It was designed to support large single jobs capable of utilizing the entire platform.

NNSA selected Cray Inc. to build Cielo last spring. The selection was made through a highly competitive procurement process that included a technical evaluation by members of all three nuclear security labs. Design, procurement and deployment were accomplished by the NNSA's New Mexico Alliance for Computing at Extreme Scale (ACES), a joint partnership between

on Cray's next generation "Baker" architecture.

Cielo provides more than ten times the capability of the now decommissioned Purple platform at LLNL and replaced Purple as the National User Facility. The increased capability will increase the understanding of complex physics and improve confidence in the predictive capability for stockpile stewardship.

## NNSA, Rutgers University Host Counterterrorism Exercise

It is a typical afternoon at a major university when an alarm sounds at the campus police station. Initial reports indicate that a violent terrorist group gained unauthorized access to a research irradiator and stole the radioactive material needed for a "dirty bomb" with plans to detonate the dirty bomb in the heart of a major U.S. city.

Thankfully this is event is a fictitious scenario, part of one of the nearly dozen day-long table-top exercises that the NNSA and the Federal Bureau of Investigation (FBI) host around the country each year. These exercises, part of the Silent Thunder exercise series, bring together federal, state and local emergency managers and first responders from the organizations with responsibilities in responding to a terrorist incident involving weapons of mass destruction or nuclear or radiological materials.

This month, the NNSA and the FBI co-hosted with Rutgers University and the University of

Medicine and Dentistry of New Jersey (UMDNJ) MedKnight Thunder, the 89th and latest in the Silent Thunder exercise series. Both Rutgers University and UMDNJ were eager to demonstrate and test their security around such material. More than 200 officials and first responders participated in the event.

"Exercises like MedKnight Thunder demonstrate NNSA's commitment to investing in the future by helping improve the capabilities of communities across the country to protect citizens, and prevent nuclear terrorism, or respond to nuclear emergencies," said the Department of Energy's Deputy Under Secretary for Counterterrorism Steven Aoki. "President Obama has made enhancing nuclear security at home and around the world one of his top national priorities, and exercises like the Silent Thunder series play an important role in implementing his nuclear security agenda. We welcome the opportunity to partner with Rutgers

and UMDNJ to ensure effective planning, communication and response coordination."

These voluntary exercises are a critical part of keeping radiological material secure. They give these officials hands-on experience in key areas such as threat assessment, alarm response involving nuclear and radiological materials, crisis and consequence management, and post-event procedures.

Started in 1999, the Counterterrorism Exercise Program took on an expanded role following the tragic events of Sept. 11, 2001. The Silent Thunder series is an interagency partnership that brings together nuclear and radiological security and counterterrorism experts from NNSA's Office of Counterterrorism, NNSA's Global Threat Reduction Initiative, the FBI and other federal agencies. Since the program began, more than 6,500 federal, state and local officials have participated in the program.



**NUCLEAR EMERGENCY ASSISTANCE:** During her visit to Lawrence Livermore National Laboratory, NNSA Principal Deputy Administrator Neile Miller stops by the National Atmospheric Release Advisory Center to deliver a special thank you to the people working hard to support emergency response efforts in Japan.

## NNSA Expands Nonproliferation Work in Africa

This year the NNSA's Office of Defense Nuclear Nonproliferation has expanded nonproliferation work on the African continent in an effort to implement the President's nuclear security agenda around the world.

In late January, NNSA's Office of Nonproliferation and International Security and the Department of Defense's Defense Threat Reduction Agency (DTRA) co-sponsored a first-of-its-kind cooperative border security workshop in Accra, Ghana. The workshop brought together U.S. Government personnel, international experts and West African participants from Burkina Faso, The Gambia, Ghana, Mali, Nigeria, Senegal, and Sierra Leone to discuss ways to strengthen efforts to prevent the smuggling of nuclear and radiological materials.

"This multi-agency, international effort to enhance border security and prevent nuclear smuggling shows the strength of our global partnerships," said NNSA Deputy Administrator for Defense Nuclear Nonproliferation Anne Harrington. "By promoting stronger border security practices across Africa, we are working together to enhance global peace and security and implement President Obama's commitment to work with our international partners to secure nuclear material around the world."

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## NNSA Establishes Security Commodity Team to Standardize Protective Force Equipment

A team of representatives from across NNSA have been working on opportunities for standardizing security equipment used by NNSA's Protective Force across the enterprise. The goal of the team is to improve the quality, safety and procurement methods of equipment.

Established 18 months ago by NNSA's Office of Defense Nuclear Security (DNS), the Security Commodity Team has identified several significant opportunities to improve the way NNSA manages its resources.

The team was able to optimize the procurement process for ammunition through spend analyses conducted by the NNSA Supply Chain Management Center. Now, NNSA can obtain 90 percent of its ammunition requirements using existing Department of Defense (DoD) contracts at an overall reduced price – estimated at \$500,000 savings for FY 2011. This will also significantly improve confidence in the performance and safety of the ammunition by virtue of high quality assurance and military-specification standards, traceability, and updates provided by DoD.

The team has also successfully implemented an interagency contractor procurement team agreement for protective force respirators, which standardized this piece of equipment across the nuclear security enterprise. Substantial savings of nearly \$200,000 was realized by this effort during the first quarter it was implemented.

In addition to the cost savings realized through the procurement of ammunition and other equipment, the team standardized the Protective Force uniform and insignia across the nuclear security enterprise. In addition to the anticipated long-term savings, this effort significantly elevated the protective force morale and professional image of our forces providing critical security services to the NNSA.

"I'm proud of the success of this team that looks for any and every opportunity to improve the quality, reliability and safe operation of our Protective Force equipment while also ensuring that every penny of the taxpayers' money counts," said Brad Peterson, NNSA Chief and Associate Administrator for Defense Nuclear Safety. "The achievements of the team demonstrate NNSA's commitment to improving the way we do business and manage our resources."

The team consists of federal and contractor personnel, the NNSA Supply Chain Management Center, and Protective Force union representatives from across the nuclear security enterprise, and is led by Marshal Skinner, a Defense Nuclear Security Protective Force program manager.

"This collaboration has been successful due to the dedication, professionalism, and motivation to 'do the right thing' that is shared by of all the team members," said Skinner. "The team continues to identify more opportunities to improve the way NNSA does business and we are including the non-NNSA sites in this initiative so that they may also benefit."